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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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SECURITY INFORMATION

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COUNTRY	East Germany	REPORT	
SUBJECT	Development of the Forelle and Other Special Projects at the Rosslau Shipyard	DATE DISTR.	31 August 1953
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THE SOURCE EVALUATIONS IN THIS REPORT ARE DEFINITIVE.
THE APPRAISAL OF CONTENT IS TENTATIVE.
(FOR KEY SEE REVERSE)

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Comments:

1. Para 3, a. EKM Rosslau is VEB Elbewerk Rosslau VVB EKM, Rosslau.
2. Para 3, g. Schaeffer and Budenberg, Magdeburg, is currently known as Messgeraete- u. Armaturenwerk Karl Marx, SAG Amo.

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REPORT

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COUNTRY : East Germany

DATE DISTR. 28 JULY 53

SUBJECT : Development of the Forelle and Other Special Projects at the Rosslau Shipyard

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NO. OF ENCLS. : 3 (LISTED BELOW)

DATE ACQUIRED

SUPPLEMENT TO REPORT NO. 50X1-HUM

DATE OF I

THIS IS UNEVALUATED INFORMATION

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CONSTRUCTION OF TORPEDO BOAT, FORELLE

a. In April 1953 the preliminary designs for a full scale model of a torpedo boat (Schnellboot), with the code name, Forelle, were started. It was arbitrarily decided that the underwater form of the Forelle would be modeled after the M-1 and the above water part after the M-2. Paradoxically, the M-2 had not yet been constructed and tested. The reasons for the decision were not known. The Forelle is scheduled to be floating at the end of 1953.

Required Performance and Characteristics

The Forelle will be required to make 42 knots at sea conditions 6 to 7. Armament must include two torpedo tubes for forward launching arranged in a slight V-arrangement and AA guns mounted behind the bridge. The caliber or type of AA guns was not fixed. The length will be around 20 meters. It will be driven by two DB 25 (20 cycles, V banks) capable of producing 2500 hp each. The thrust per propeller should be about 8.6 tons at 940 rpm. The boat will have three fuel tanks, each holding 4.6 tons. Fuel consumption required at full power is 210 grams/hp/hr; at cruising (Marschfahrt) 185 to 190 grams/hp/hr. The auxiliary motors will consist of two HK65 (Junkers twin-piston) producing about 10 hp each. These auxiliaries will drive the bilge pump, fire-fighting pump, compressor of 90 atmospheres (4.5 cubic meters/h), and electric generator [see Enclosure (A)].

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Bottlenecks 50X1-HUM

3. [redacted] developing a special stem tube and "Koker" bearing (shaft end bearing and rudder stem) designs (see Enclosures (B) and (C)). However, in drawing up the designs for the engine layout, 50X1-HUM bilge pump pipes, fire-fighting lines, sea and fresh water cooling lines, preheating pipes for motors, lubricating lines, and fuel lines [redacted] a number of bottlenecks [redacted] will prevent launching the Forelle on schedule. Specific bottlenecks are:

a. Motors - Considerable difficulty is being encountered in obtaining the DB 25. The two motors were manufactured before World War II and have been stored at least eight to ten years, 50X1-HUM and it is doubtful whether they can still be used. [redacted] it is very doubtful whether the DB25's can be reconditioned at all. The EKM broke down the motors, measured all parts, and forwarded the data to Ludwigsfelde/Berlin, where it will be attempted to 50X1-HUM construct new motors from the dimensions. [redacted] it may take three years to reproduce suitable motors, similar to the DB25, because of the lack of or inability to 50X1-HUM provide high-grade steels, split bearings, supercharger intercoolers of small size, precision tooling machines, long casting crankshaft, and qualified technical personnel.

b. Tachometers - Special tachometers (reed tachometer or Zungentachometer) are no longer being made in the Soviet Zone.

c. Light alloy cylinders - A supplier for light alloy cylinders of 90 atmospheres pressure rating could not be found. Most likely the cylinders will have to be imported from the West.

d. Exhaust pyrometers - A supplier for exhaust pyrometers could not be located. The Forelle will require 40 exhaust pyrometers.

e. Thrust bearings - Special thrust bearings are required to take a propeller thrust of 8.6 tons. Formerly that type of bearing was made specially by the Schweinfurt bearing plants. [redacted] 50X1-HUM a horseshoe bearing (Michellager) as a substitute solution. [redacted]

f. Tubular screw couplings ("Ermedo" or "Argus" couplings, respectively light tubular screw couplings conforming to DIN 7600 et seq.) - This equipment cannot be obtained by simply placing an order. The special machines needed to construct these couplings have been dismantled as reparations. However, the specialists needed to operate the machines are still available.

g. Light Accessories - Light accessories, made of AlMg5 parkerized, such as sea cocks, pressure-valve housings, suction-valve housings, battery valves, underfloor faucets (Unterflurhaehne), etc., are being developed at the Rosslau shipyard, and will be manufactured by Schaeffer and Budenberg at Magdeburg. It will take between five and six months to complete this equipment.

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h. Supercharger intercoolers, split bearings, steel alloys, etc. for DB25's - /See sub-paragraph (a) above./

i. Difficulties in procuring light metals: Aluminum rivets, aluminum sheets, etc. -

1. Castings--unable to produce an alloy of uniform tensile strength (fusible alloy).

2. Light metal sheets are being made in various grades: Hy35, Hy7 and Hy5. All semi-finished products and pipes are made of those materials. For manufacturing alloy sheets the ingots are sent from the Elektrochemische Kombinat, Bitterfeld, to the Rolling Mill at Hettstedt. The latter plant can roll sheets up to a width of 850 millimeters only. The longitudinal ship frames have to be designed with that fact in mind. When Herr RENNER of the Elektrochemische Kombinat, Bitterfeld, was contacted regarding the tensile strengths of the various alloys, he pointed out that if possible, no Hy7 material should be used. Bitterfeld could not guarantee a uniform strength for that material. Considerable difficulties then arose at the shipyard. All designs were based on Hy7. As no guarantee could be given for that material, it had to be substituted by Hy5. As the latter's tensile strength was 20 per cent below that of Hy7, all the Forelle's parts had to be strengthened accordingly. That means an increase in rated weight by 15 to 20 per cent.

3. It is anticipated that further difficulties will arise in obtaining light alloys when the rebuilding of the airplane industry is completed and they start producing.

j. Skilled Personnel - As the Forelle is a light metal boat requiring specially trained personnel, of which there is not enough for mass production, considerable personnel difficulties are going to arise. In addition the aircraft industry will be needing those same specialists. It is doubtful whether there are enough skilled workers and raw materials to supply both ship and aircraft production

SCOPE OF OTHER DEVELOPMENTS AT ROSSLAU SHIPYARD

4. Recently several new projects were added to the agenda of the group working on the Forelle. Two of these projects are:

a. Project "Lachs" (S-boat) - This boat will be approximately 25 to 27 meters long and is further described as a 60-ton vessel. The engines are supposed to be two gas turbines having a total output of 6000 hp. An auxiliary diesel will be installed between the turbine drives for maneuvering. The diesel could also be used for cruising, thus giving the vessel a large radius of action. The turbines are being developed at EKM, Dresden, under a Mr. PREISKORN.

b. Another project is the development of a boat with four engines (turbines) having either two or four propellers. The vessel will displace either 120 or 160 tons. Two 1.2 meter-long models of this boat were sent to the Soviet Union to be tested in a towing basin there.

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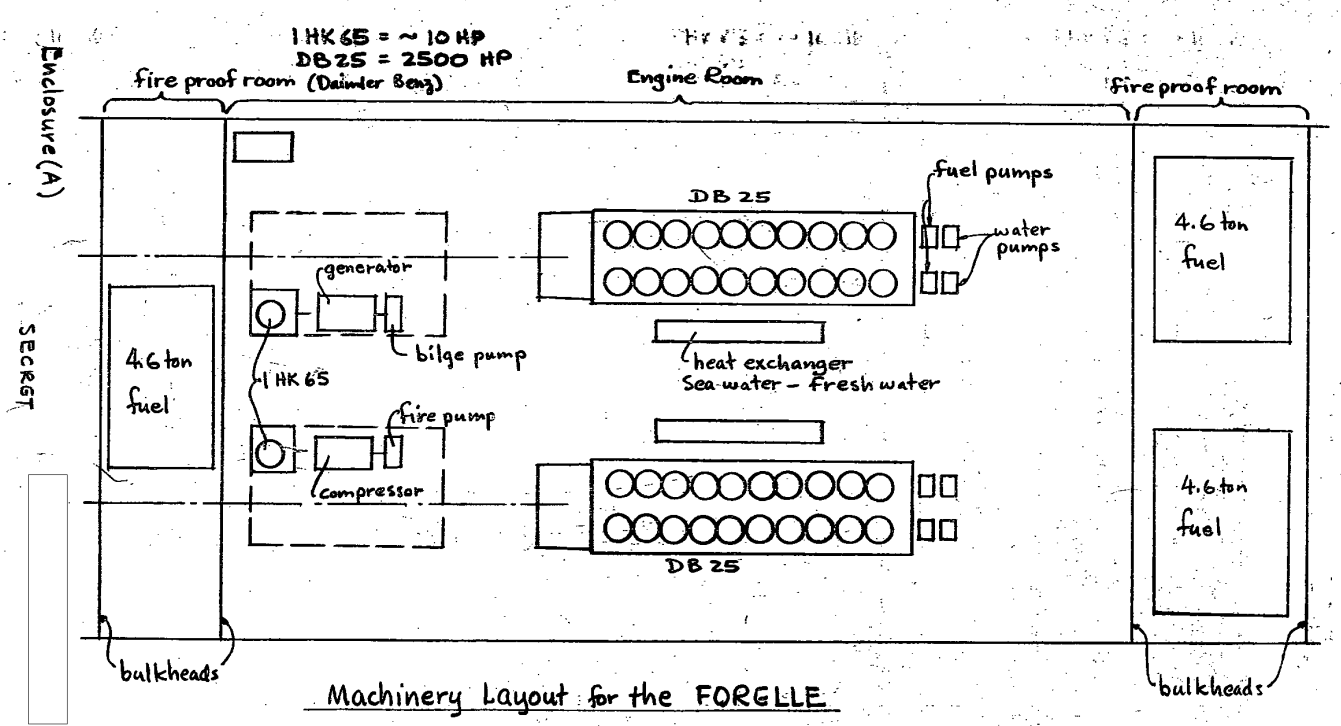
Enclosure (A) - Machinery Layout for the Forelle.

Enclosure (B) - Stem Tube, Forelle.

Enclosure (C) - "Koker" Shaft End Bearing and Rudder Stem Lubricating System (Type 1 and 2).



Machinery Layout for the FORELLE

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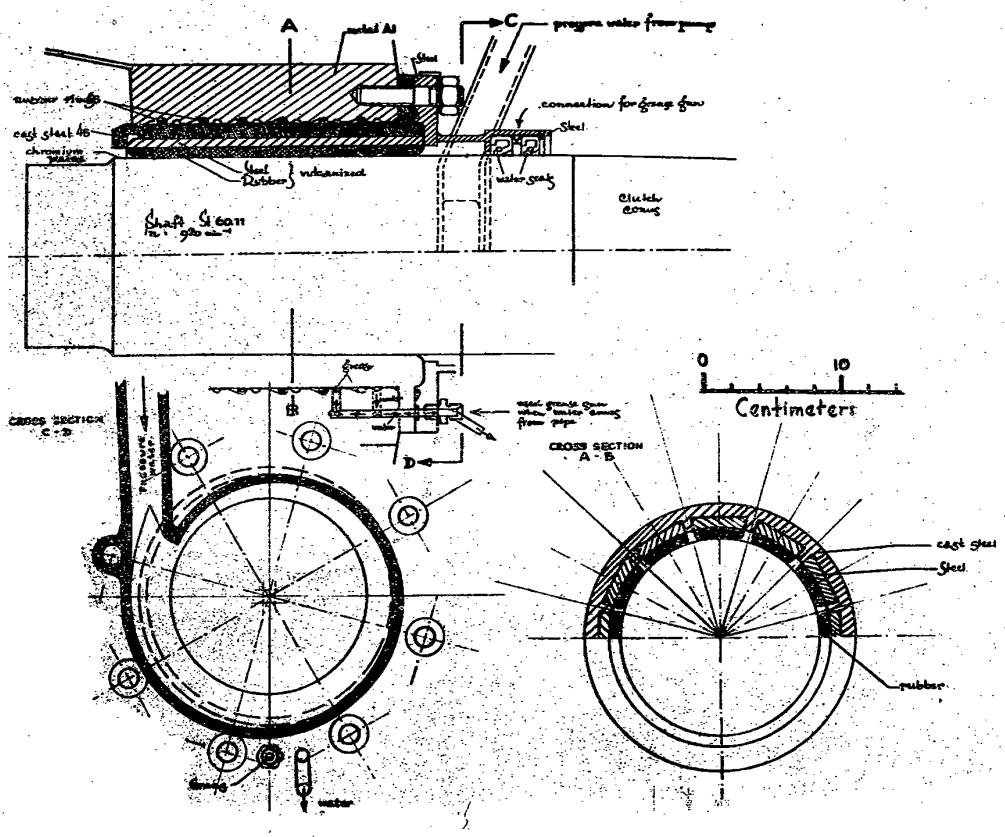

STEM TUBE - FORELLE
Enclosure (B)

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"KOKER" (Shaft End Bearing & Rudder Stem Lubricating system) (Type 1 and 2)

Enclosure (C)

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